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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,058	02/08/2002	Satoshi Nakamura	FUSA 19.421	1168

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EXAMINER
LELE, TANMAY S

ART UNIT	PAPER NUMBER
2684	5

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/072,058	NAKAMURA ET AL.	
	Examiner	Art Unit	
	Tanmay S Lele	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2&3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. It is noted that this application appears to claim subject matter disclosed in prior Application No. PCT/JP99/05183, filed 22 September 1999. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority

claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in PCT/JP99/05183, filed 22 September 1999. It is noted, however, that applicant has not filed a certified copy of the PCT/JP99/05183 application as required by 35 U.S.C. 119(b).

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 –3, 5 –7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakano et al. (Nakano, European Patent Application, EP 709,973).

Regarding claim 1, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR (note SIR is usually referred to a low frequency signal, its high frequency analog is CIR), which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR (column 3,lines 19 – 32), comprising: a fading detector for detecting rate of change in fading (Figure 5 and column 7, lines 45 – 56); a correction unit for correcting the target SIR based upon the rate of change in fading (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B column 9, lines 24 – 38); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Regarding claim 2, Nakano teaches all the claimed limitations as recited in claim 1. Nakano further teaches of further comprising a memory for storing correspondence between rates of change in fading and correction values of target SIR (Figure 5, column 7, lines 45 – 56) wherein said correction unit corrects the target SIR using a correction value corresponding to the rate of change in fading read out of the memory (Figure 5, column 7, lines 45 – 56).

Regarding claim 3, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR (column 3, lines 19 – 32), comprising: a searcher for detecting multipath

and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a correction unit for correcting the target SIR based upon the level differences between paths (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Regarding claim 5, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR, comprising (column 3, lines 19 – 32): a fading detector for detecting rate of change in fading (Figure 5 and column 7, lines 45 – 56); a searcher for detecting multipath and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Regarding claim 6, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR (column 3, lines 19 – 32), comprising: a fading detector for detecting rate of change in fading (Figure 5 and column 7, lines 45 – 56); a searcher for detecting multipath and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a BER measurement unit for measuring bit-error rate BER (Figure 5 and column 7, lines 45 – 56 and column 10, lines 39 – 53); a correction unit for correcting the target SIR based upon a combination of the rate of change in fading, the level differences between paths and a difference between measured BER and target BER (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38; column 10, lines 39 – 53; Figures 13A and 13B); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Regarding claim 7, Nakano teaches all the claimed limitations as recited in claim 6. Nakano further teaches of further comprising a memory for storing correction values of target SIR in correspondence with combinations of rate change in fading and level differences between paths (column 7, lines 45 – 56 and Figures 8A and 8B); wherein said correction unit corrects a correction value, which corresponds to a combination of the rate of change in fading and the level differences between paths read out of the memory, on the basis of the difference between

measured BER and target BER, and corrects the target SIR by said correction value (Figures 13A and 13B and starting column 10, line 54 and ending column 11, line 29).

Regarding claim 11, Nakano teaches all the claimed limitations as recited in claims 1, 5, and 6. Nakano further teaches of wherein said fading detector detects the rate of change in fading based upon the measured SIR (column 3, lines 19 –32).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Dohi et al. (Dohi, US Patent 6,341,224).

Regarding claim 8, Nakano teaches of a transmission power control apparatus in a base station for measuring SIR, which is a ratio of a receive signal to an interference signal, and controlling transmission power of a mobile station in such a manner that said measured SIR will agree with a target SIR (column 3, lines 19 – 32), comprising: a fading detector for detecting rate of change in fading (Figure 5 and column 7, lines 45 – 56); a searcher for detecting multipath and levels of signals that arrive via respective ones of the paths (Figure 5 and column 7, lines 45 – 56); a level-difference calculation unit for calculating level differences between paths using the levels of signals (Figure 5 and column 7, lines 45 – 56); a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between

paths and a difference between the measured [value] and target [value] (Figure 5 and column 7, lines 45 – 56; Figure 8A and 8B and column 9, lines 24 – 38; column 10, lines 39 – 53; Figures 13A and 13B); and means for creating a command, which controls transmission power of the mobile station in such a manner that the measured SIR will agree with said corrected target SIR, and transmitting this command to the mobile station (Figure 5; column 7, lines 1 – 15 and starting column 7, line 57 and ending column 8, line 2).

Nakano does not specifically teach of a FER measurement unit for measuring frame-error rate FER or of [a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths and a difference between the measured] FER [and target] FER (note the brackets have been added for grammar and clarity and these limitations have been addressed as cited above).

In a related art dealing with power control based on SIR using a channel quality metric, Dohi teaches of a FER measurement unit for measuring frame-error rate FER (column 3, lines 55 – 59 and column 5, lines 30 – 42) and of [a correction unit for correcting the target SIR based upon a combination of the rate of change in fading and the level differences between paths and a difference between the measured] FER [and target] FER (column 3, lines 55 – 59 and column 5, lines 30 – 42).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano's power control system, Dohi's FER measurements, for the purposes of setting the SIR value with respect to a certain level of channel quality, as taught by Dohi.

Regarding claim 9, Nakano in view of Dohi teach all the claimed limitations as recited in claim 8. Dohi further teaches of target FER (column 6, lines 4 – 13) and Nakano further teaches

of further comprising a memory for storing correction values of target SIR in correspondence with combinations of rate change in fading and level differences between paths (column 7, lines 45 – 56 and Figures 8A and 8B); wherein said correction unit corrects a correction value, which corresponds to a combination of the rate of change in fading and the level differences between the paths read out of the memory, on the basis of the difference between the measured [FER] and the target [FER], and corrects target SIR by said correction value (Figures 13A and 13B and starting column 10, line 54 and ending column 11, line 29).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) as applied to claim 3 above, and further in view of Hasegawa (Hasegawa, US Patent No. 6,032,050).

Regarding claim 4, Nakano teaches all the claimed limitations as recited in claim 3. Nakano further teaches of further comprising a memory for rounding; as (Lmax-Ls), levels for which the level difference from a maximum level Lmax is less than a set value Ls (as seen in Figures 13A and 13B), and storing correction values of target SIR in correspondence with combinations of level differences between mutually adjacent reception levels in the order of the reception levels (column 7, lines 45 – 55 and starting column 10, line 54 and ending column 1, line 13); calculates level differences between mutually adjacent reception levels (as seen in Figure 13A and 13B and column 11, lines 14 – 29); and said correction unit corrects the target SIR using a correction value corresponding to the combination of level differences read out of the memory (column 7, lines 45 – 55) and paths of the multiple paths (column 7, lines 45 – 54).

Nakano does not specifically teach of wherein said level-difference calculation unit arranges the reception levels in order of decreasing or increasing size.

In an analogous art dealing with channel seizing and standby control mode, Hasegawa teaches of wherein said level-difference calculation unit arranges the reception levels in order of decreasing or increasing size (column 13, lines 33 – 39).

It would have been obvious to one skilled in the art at the time of invention, to have included into Nakano's power control method, Hasegawa's ordering system, for purposes of being able to access a zone normally serviced (in case of emergency), as taught by Hasegawa.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) as applied to claims 1,5, and 6 above, and Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Dohi et al. (Dohi, US Patent 6,341,224) as applied to claim 8, further in view of Watanabe et al. (Watanabe, US Patent No. 5,802,110).

Regarding claim 10, Nakano teaches all the claimed limitations as recited in claims 1, 5, and 6, while Nakano in view of Dohi teach all the claimed limitations as recited in claim 8. Nakano further teaches of wherein said fading detector detects the rate of change in fading from a difference between signals, which has been received from the mobile station before a prescribed time in the past (column 7, lines 45 – 56 and Figures 5, 8A, and 8B).

Nakano does not specifically teach [wherein said fading detector detects the rate of change in fading from a difference] between phase of a pilot signal, [which has been received from the mobile station before a prescribed time in the past] and phase of the pilot signal at the present time (note brackets are used for clarity in language and these limitations are taught in the above cited).

In a related art dealing with power control, Watanabe teaches of teach [wherein said fading detector detects the rate of change in fading from a difference] between phase of a pilot signal, [which has been received from the mobile station before a prescribed time in the past] and phase of the pilot signal at the present time (column 7, lines 28 – 46).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano's (or Nakano in view of Dohi's) power control system, Watanabe's pilot signal, for the purposes of providing a power control system that can be controlled at high speeds and with high accuracy, as taught by Watanabe.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (Nakano, European Patent Application, EP 709,973) as applied to claims 1,5, and 6 above, and Nakano et al. (Nakano, European Patent Application, EP 709,973) in view of Dohi et al. (Dohi, US Patent 6,341,224) as applied to claim 8, further in view of Tiedemann, Jr. et al. (Tiedemann, US Patent No. 6,317,587).

Regarding claim 12, Nakano teaches all the claimed limitations as recited in claims 1, 5, and 6, while Nakano in view of Dohi teach all the claimed limitations as recited in claim 8.

Nakano, or Nakano in view of Dohi, fail to teach of wherein said fading detector detects the rate of change in fading based upon direction of transmission power control by TPC bits.

In a related art dealing with power control, Tiedemann teaches of wherein said fading detector detects the rate of change in fading based upon direction of transmission power control by TPC bits (column 10, lines 22 – 25 and column 3, lines 45 –58).

It would have been obvious to one skilled in the art at the time of invention to have included into Nakano's (or Nakano in view of Dohi's) power control system, Tiedemann's

power control bit monitoring, for the purposes of providing a timely power control system to provide robust communication link quality under fading conditions, as taught by Tiedemann.

Citation of Pertinent Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Inventor	Publication	Number	Disclosure
Kim	US Patent	6,477,389	Method for Compensating for Transmission Power Deviations of Channels in a Mobile Phone
Shiraki et al.	US Patent	6,389,296	Transmission Power Control Method

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Nay A. Maung can be reached on (703) 308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Tanmay S Lele
Examiner
Art Unit 2681

NAY MAUNG
PRIMARY EXAMINER

tsl
June 9, 2003